
Hollow fiber membrane filtration devices and their cleaning

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AB The devices have a filter divided by a plate into a raw water chamber and a filtered water chamber, hollow fiber membrane modules hanging on the plate, a partition dividing the raw water chamber into an upper and a lower compartment, tubes having openings above and below the partition for protecting the modules and fixing the partition, bubbling nozzles under the protection tubes, and a head tank connected to the upper compartment. The devices are cleaned by filling the filter and the head tank with water, controlling the water in the lower compartment at a level not to seal the opening of the protection tubes, bubbling air to form an air accumulation at the upper part of the lower compartment, stirring to form an up flowing stream of bubbles in water near the immersed modules and to lower the water level in the protection tubes to raise the water level in the lower chamber to compress the air, continuously supplying the bubbles to remove the particles collected on the outside of the hollow fiber filter membranes by the alternate ascending and descending flows until the air accumulated in the upper compartment reaches the pipe connected to the head tank.
